Introduction

In the title I ask if finance matters for firms and their innovation strategy. You could also rephrase and ask if corporate innovation matters for financial development. Does finance lead innovation or does innovation lead finance? Robinson (1952, p. 86) claims: “where enterprise leads, finance follows.” Lucas (1988) argues that the link between financial and economic development is “over-stressed”. In everyday life it can sometimes be hard to see how finance and financial markets might matter to corporate innovation and ultimately real economic activity. It is not straightforward to argue that stock market development is important for corporate innovation.

Financial markets are supposed to allocate capital to the most productive projects. In this thesis I consider firm level innovation projects. R&D and innovation are central elements in the endogenous growth literature, partly, because they boost productivity levels (e.g. Romer (1990) and Aghion and Howitt (1992)). Efforts have been made to incorporate financing into endogenous growth models of where growth is driven by innovation and R&D (e.g., De la Fuente and Marin (1996), Morales (2003) and Aghion, Howitt, and Mayer-Foulkes (2005)). But why should financial aspects matter to corporate innovation in theory? In this thesis I point to three stylized facts: i) asymmetric information, for technical reasons it is often difficult for outside investors to become well informed about the expected returns associated with cutting-edge R&D, ii) returns to R&D are often skewed and highly variable, and iii) R&D lacks collateral value, which limits the ability of firms to pledge assets, which, in theory, can overcome adverse selection and moral hazard problems (e.g., Bester (1985)). The characteristics described by the stylized facts impede the use of debt finance. A fact which is empirically supported: around the world, R&D intensive firms tend to use little leverage (see Hall (2002) and Hall and Lerner (2010) for surveys). However, the last two need not apply to equity finance. Equity holders share in the upside returns and thus skewness and variability need not be a problem; in contrast, the very nature of the debt contract is not well suited for risky investments such as R&D since creditors share only in the low returns associated with failure. Furthermore, collateral is not relevant for equity finance whereas banks almost always require risky firms to post collateral to obtain debt finance. These reasons imply that R&D is an equity-dependent type of investment, particularly for firms prone to binding financing constraints. A firm facing binding financing constraints implies a firm with limited internal funds relative to investment opportunities (e.g., small and young firms). It is for these firms that stock market development matters the most. Since debt is ill-suited as external source of
finance for R&D projects external equity is the only way to meet the outside financing needs for a financially constrained firm. In essay 3, I show that in countries with better developed stock markets; financially constrained firms can access more external equity and therefore invest in R&D at higher intensity. Essays 1 and 2 support this finding.

The finance and growth literature concludes that finance matters to economic growth (e.g. King and Levine (1993) and Levine (1999)). Studies by Rajan and Zingales (1998) make progress by unveiling a theoretical mechanism where finance influences growth. In his survey of the finance and growth literature, however, Levine (2005) emphasizes that the channels through which financial development matter for growth are not well understood. In particular, physical investment does not appear central to understanding the finance-growth nexus, but rather what is required are “theories that describe how financial development influences resource allocation decisions in ways that foster productivity growth….” Similarly, there is strong evidence that stock-market development and liberalization are positively correlated with economic growth. However, stock markets appear to impact growth primarily by fostering productivity growth rather than increasing capital accumulation (see the evidence in Bekaert, Harvey and Lundblad (2010) and the discussion in Levine (2005)).

The findings in essay 3 suggest that more attention should be given to the possibility that financial market development fosters productivity and increases growth by permitting otherwise constrained firms to increase their investment in R&D. And, that it is stock market development in particular that stimulates productivity since it enables firms with limited internal funds relative to R&D investment opportunities to access external finance, i.e. channeling funds to its most productive use. In essays 1 and 2 I put forward evidence that firm-level R&D activities are constrained by access to external finance. In essay 3, I use these findings to understand how financial market development, and stock market development in particular, influence economic development. In essay 4 I augment the first 3 essays by considering patent applications as an alternative measure of innovation. Equity supply seems to matter for firms in maintaining a smooth patenting strategy through time.

The findings in my thesis suggest that better access to finance should lead to higher levels of R&D; however, it is better access to equity finance that matters, not better access to debt. A straightforward way to raise internal equity finance (e.g., cash flow) is to lower corporate income taxes. There are also policies that can increase access to external equity finance. Straightforward policy initiatives include efforts to improve accounting standards and craft regulations that permit firms to list on equity markets at an earlier age (perhaps even before
they are profitable). For example, beginning in the 1980s, Sweden removed many restrictions in their financial markets, which led to a 20-fold increase in the transaction volume on their stock exchange between 1980-1990 (Englund (1990)). Other policy initiatives involve strengthening investor protection, which appears to be strongly associated with improved access to equity finance (e.g., La Porta, Lopez-De-Silanes, Shleifer and Vishny (1997)).
References


